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## COMMERCIAL GEOGRAPHY—THE NEW SCIENCE.<sup>1</sup>

DURING one of the campaigns of Napoleon a curious event is said to have occurred. The emperor had been absent at Paris for a long time and the troops on the frontier had grown inactive. Suddenly, without any apparent cause, the troops began to work with feverish activity at their ordinary tasks. The officers shared in their enthusiasm, but were unable to see a cause for it. The excitement lasted a day and a night, and on the second day the news spread that Napoleon had arrived during the night quietly and unannounced. It appeared then that the mere presence of that great leader had inspired the troops along the frontier, though they did not know of his arrival.

So during the last twenty years a new movement has arisen in education. Old systems of training and long accepted standards have suddenly become unsatisfactory and have been thrown aside. New methods of teaching old studies, new ideas of the purpose of education, new activities—as the kindergarten, manual training, the elective system, laboratory methods—have swept over the school world with a speed and force that even their most earnest supporters have been unable to explain and which their opponents have believed would destroy the entire system of sound and thorough education.

Today I believe that the cause of this sudden and far-reaching impulse can be seen; that the new force which has compelled this new and vigorous life is apparent, and the leader in the new education has taken command—a power soon to be gladly known and obeyed. This new force is the modern idea that *the thinker must also be the doer*; that faith, however lofty, without works cannot lift mankind; and that the dreams of the student in his library must be tested by the sturdy workman in the workshop before they can lead the world. The application of this force may well be called, “the science of practical life,”

<sup>1</sup>Read at the meeting of the Business Section of the National Educational Association, Boston.

or in a more correct title, "the science of commerce and industry," commonly called "commercial geography." It is to call your attention to the nature of this science and its place in the schools that I have the privilege of speaking to you this morning. I would say, in passing, that I was a defender of the classics, with Greek as my special study, and I still believe the classics are necessary for a ripe, literary culture; but I have come to believe that for most men other studies are of more importance in the practical world of today.

The subject of commercial geography was put into the schools without a very clear idea of what it really was. A professor of physical geography said a few months ago: "What is commercial geography? I don't know." And a high-school master said to a pupil: "You can get all there is in commercial geography by a few hours reading out of school." These two remarks express the usual thoughts of teachers on this subject. In the few minutes at my disposal, I must state certain facts in a dogmatic way, but each is the result of careful study and experiment for the last four years, the space of a college course.

The science of commerce and industry, as the subject should be called, deals with several branches of study:

1. The study of commercial staples, as wheat, cotton, lumber, etc., from raw materials through manufacturing processes, to the finished products.
2. The ways by which these products are transported by sea and land over the world to the consumer.
3. The mechanism of trade, as banks, credit, clearing houses, markets, by which the great masses of productions are handled and the money in payment for them returned to the producer.
4. The comparative study of the nations with regard to their productions and commercial importance in the world.

This is exactly what commercial geography is, and to this topic the name should be restricted, and the broader title of "commerce and industry" should take its place.

5. The history of commerce and industry, so ably discussed by Dr. Herrick yesterday, showing how the conquests of work

in spite of the conquests of war, have made the epochs of civilization.

6. The economics of industry, which show the position of man in regard to productions, commerce, and trade, and how they are essential to his welfare and happiness.

The subject of commerce and industry is a science, with laws as precise and unerring as chemistry, botany, or physics. It may be called a "master of sciences," for its scope is wider and includes the others. For example, chemistry and physics deal with things and forces by themselves; commerce and industry, with things and forces as applied to the needs and uses of man. In the study of wheat, botany shows the growth of the plant; chemistry, the nature of the soils and the food-substances in the grain; the transportation and milling of wheat demand the sciences of engineering and physics; the marketing and payment, the science of finance; the effect of wheat on the body, the science of physiology; six sciences for a single thing. Then comes the master science of commerce and industry and, having the reports of the subordinate sciences, itself shows how men use wheat for their labor, food, and civilization. So is it with the other commercial staples and industries.

The question that naturally suggests itself is: What is the educational value of the subject? Does it tend to a higher culture, or is it merely a technical knowledge which serves only the ends of trade? If it is a science, as I claim, the subject is answered, for all science study is cultural. As I see the effect of this study on the pupil, I am convinced that—

1. It develops the power of precise observation by the study of natural processes.

2. It rouses and holds the interest of even the dullest pupil, because he deals with real things in a natural way.

3. It develops the reason by the study of causes and their results.

4. It stimulates the imagination by the learning of great numbers of men employed in human labor, immense masses of material to be handled, and the engineering skill and daring required which thrill and fascinate the mind.

5. It broadens the mind by the study of other nations, their life and trade, and destroys the narrow, dangerous self-content of local pride.

6. It strengthens the memory by constant use as a child naturally learns, the content being of interest to him.

7. It creates a respect for the study, a respect that men feel for lightning, a waterfall, or a dynamo. This comes because the pupil feels the knowledge to be real, vital, and so vast as to be impressive.

8. It matures the judgment from the necessity of deciding between methods in business, and so brings real wisdom, the fruit of experience.

9. It excites ambition and creates enthusiasm by showing laurels to be won, difficulties to be mastered, secrets to be wrested from nature which demand the highest skill, the most trained experience, the most persevering will; and a study that does these things is certainly cultural.

Commercial geography was given a place in the curriculum of the school a few years ago to satisfy a popular demand for practical education and business training. With the common demand that a boy be taught only what he will use in business I have no sympathy at all. For the demand that he shall be taught what will be of practical use in life as well as in school I have respect. Something is vitally wrong when the high-school graduate is less valuable when he goes to work than his former classmate in the grammar school who began work four years before. When the subject was introduced, it was given an hour or so a week, joined with other studies, deemed of little use; school boards did not know what to do with it; teachers were not trained to teach it; materials were not at hand or methods devised; no text-books were ready. These conditions have not entirely passed away, but they are changing with wonderful swiftness. It is like the ugly duckling, still sneered at, kicked about, abused, and tormented by the ducks and by the hens, and accused of being too big and awkward. But you will remember that when his wings were grown he flew far beyond his tormentors—a great, white, shining, splendid swan. Busi-

ness men grow enthusiastic over the promise to them of valuable results, but this is not technically a business study any more than history, English, or chemistry. It is a general study, and should not be restricted to commercial causes. Every child in the grammar school studies geography. So in the future every pupil in the high schools will study commerce and industry as absolutely necessary for an all-around training, whether he goes to college or to business direct.

In applying this science to the schools there are two points to consider: first, the preparation of the teacher for this work; second, the training of the pupil in the study.

First: The idea that anybody can teach the subject is already becoming: "Who is able and ready to teach it?" The teacher of commerce and industry must be a man of affairs as well as of books. Where now the college student prepares for teaching by studying in normal school or university, the teacher of commerce will turn to actual study in business life. Where a normal graduate now gives his time gladly in school practice, the student of commerce will spend some months in a bank, some months in a great department store, or in some factory where textile fibers are turned into cloth, or in a railroad office where problems of transportation and management are solved. Perhaps also he will follow the construction of some modern office building from foundation to capstone. Does this seem like adding another straw to the overloaded camel of what a teacher must know and do before he can earn his living? Turn from what the writers say to what men in action say and do. Opinions like theological ideas cease to develop and lose their vital force from the moment they are crystallized into creeds or books and become dead history, not living inspiration. Take the time you would spend on books and devote it to the men who make things and the men who sell and transport them. "As the cyclopædia withers, then the world grows more and more." So shall the teacher, with the same effort, in the same time, gain a knowledge that will be incandescent, not a reflected glow. I do not wish unduly to depreciate the value of books; they are valuable as records; but it should be men of commerce first, books last.

I feel like quoting another of Napoleon's terse sayings: "Mass your battalions where the enemy is most in force;" and by that I understand the world of work.

At first, I confess the outlook is bewildering. Like the view from a great mountain peak, it seems infinite—ridge, summit, ravine, forest in endless succession. Little by little the mind clears, and a few great summits appear to which the others are subordinate, and which themselves depend on the one dominant peak. So in the view of human industry it seems a hopeless task for the teacher to do more than grasp a few salient and unrelated facts, curiosities of knowledge, not instruments. We wonder what bond of union have wheat, cotton, leather, paper, steel, the Panama canal, and the roaring of the stock and produce exchanges. Like all great truths, it becomes simple with the magic key. This is the key of use, of aid to man to help his development and minister to his needs. In this light let us consider our points: Wheat, man uses for food, and in the raising it and carrying it and selling it the larger part of mankind find their labor, their living, their happiness; cotton, man needs for clothing; leather, man must have for shoes and harness; on paper, man keeps his records and sends his messages; of steel, man builds his bridges, his railroads, his swift and burden-bearing ships; the Panama canal will cheapen the cost of transportation so that a poor man in Australia can afford to buy a coat, the making of which has enabled the English workman to buy bread for his children in London; the roaring of the stock exchanges is a surface indication of the great forces of trade by which men move the mighty masses of productions and control the powers of industry; and you see men shouting, cheating, and fighting, it may be, but still doing the work and serving their fellow-man.

The thought I wish to make prominent is that the new education is sound in so far as it teaches man to know himself, but first with the body its needs and uses, and then with his mind.

There are few books, as yet, of value for the training of teachers, but Clow's *Commerce* and Thurston's *Industrial and*

*Economic History* are especially helpful. They are brave pioneers in the new field of work.

The splendid series of text-books published by the Appletons, treating of funds and their uses, the work of Wall street, trust, finance, etc., will enable the teacher to understand more clearly these important phases of financial life and make him more successful in his work.

The next point is the way the study should be taught to the pupil. There are two methods usually followed:

1. The pupil begins with the study of the United States and its products; then England, France, Germany, etc., till the world or the text-book is finished. This method is not scientific and its results are not satisfactory.

2. The "Philadelphia method." In this the pupil begins the study of products by classes or groups, such as are used in the census reports, as mineral products, vegetable products, forest industries, mining, etc. This method is scientific, at least, and in the hands of trained teachers, like Mr. C. A. Herrick and his colleagues in the Central High School of Philadelphia, can be made highly successful. Its weakness lies in the fact that these groups are separate and unrelated and not parts of one great system.

3. The "Boston method." A third method which seems more sound and scientific is the one used in the English High School in Boston. It is as follows: The pupil studies commercial products and human industries from the standpoint of man and the needs of human life. In this way every commercial staple, each form of human labor, takes its place as a part of a harmonious system, the purpose of which is the development of mankind. The idea kept constantly before the mind of the pupil is: "What use is this to man; what does he do with it and by means of it?" Taking the needs of man in the order of their importance, we find he needs first food and drink; then clothing, shelter, fuel, and lights; transportation, mechanical power, minerals, etc. So the pupil studies foods, textiles, fibers, building materials. He begins with foods, and among these the cereals—wheat, corn, rice, etc.—are the most important. The



method of studying wheat will show the method for all. The study covers: the growth, varieties, and method of planting wheat; the way it is reaped, threshed, transported, and stored; the way it is milled, *i. e.*, turned into flour and carried over the world to the consumer; the way it is made into bread, macaroni, and breakfast foods, and sold under varying conditions; the localities in the United States where wheat is grown, and the amount of the crop raised for domestic use or for export; the other nations of the world which are or can be rivals of the United States in wheat-raising, and the nations which furnish the markets for our wheat.

After wheat, the other cereals are studied in the same way; then fruits, nuts, sugar, etc.; then the beef and other animal foods and fish, the dairy products, tea, coffee, and other chief foods. Next comes the subject of textile fibers. Wool, cotton, silk, flax, hemp, etc., are followed from the raw material to the finished fabric, showing, of course, the processes of baling, carding, spinning, weaving; other fabrics used for clothing follow, such as leather, furs, rubber, paper. After textiles the building materials—lumber and its uses, stone, brick, cement, steel, with methods of construction and uses of buildings, bridges, etc. Next fuels and lights, as petroleum, coal, gas, electricity.

Transportation, manufactures, mining, methods of trade, banking, are studied as fully as time will permit. The method is flexible. It will expand to use an hour a day or the student's entire time, or it can be condensed to a couple of hours a week. In dealing with these subjects the commercial value of the product of labor is always kept in mind, and other points are left for further study, if desired, in the courses of chemistry, botany, physics, economics, etc.

Second only to the right method of study in the English high school is the principle that the study of these products must be based upon the observation, handling, and laboratory work upon actual specimens of the substances; in fact, it may almost be said that if the specimens are not at hand, the subject is not studied. While studying from book descriptions the pupil is listless and uninterested, but when studying the actual things

and processes, the pupil is alert, eager, enthusiastic, and the recitation hour seems too short. A collection of specimens, therefore, is absolutely necessary, if this subject is thoroughly taught, and will sometime be recognized as a proper item for expense in schools, as chemical apparatus or books now are. Visits to factories and warehouses have already been begun and will be extended as experience teaches. Teachers in small towns are often better able to form collections than those in cities. Forest woods used in building or manufactures can be gathered by teacher and pupils, as also the building stones; specimens of fine grains, corn, vegetables in growth and fruit will be readily obtained from the farmers. If the town has any manufacturing industry, a complete series of specimens can be obtained for the schools and will be at once useful and valuable. The interest of parents and town will awake, for the practical value of these collections appeals to all, and the teacher will often find that the man whose prize corn or fruit was shown to the school becomes one of the sturdiest supporters of the school appropriation in town meeting.

After the collection of specimens, in point of importance, comes the library of books. First in value and need are the government publications of the United States, such as consular reports, yearbooks of agriculture, census reports, treasury bulletins, maps of Navy Department; and these each school should try to have. Some are free; some must be bought; but there are thousands sent out by Congressmen to their constituents all over the country, and soon thrown away, that might easily be saved if it were known that they were of use. These are the books of constant use for the live teacher and school. The popular magazines of today are filled with the most valuable articles on human industry, and should be gathered and the articles taken out; they can be kept in boxes or drawers like cards in a library catalogue, without further mounting. A magazine which deals with the world of industry and progress in such a manner as that of the *World's Work* ought to have a place in every school. Sunday editions of the newspapers often contain articles of the greatest value written by the foremost men of science

from their own experience. These books and articles can be made easily available by a subject card catalogue of the topics treated, which can be written out by the pupils as part of their work.

Lastly, let us examine the question of text-books. There are very few good ones on the subject of commercial geography, but many are planned by publishers, and within a few years will be issued and supply the immediate need. One thing is sure: The subject is so new that the book of today will not suit the needs of ten years hence without severe revision, for hundreds of keen-brained teachers will have then worked out the best methods. Of the books now at hand, Tilden is out of date; Chisholm and Gonne, not suited to American uses; Adams, a valuable collection of important information, but badly arranged for teaching, though the grammar-school edition is better; but MacFarland is the best just now on the market, and his new book of charts and tables is of great value. *Raw Materials of Commerce*, by Dr. Trotter, of the Central High School of Philadelphia, is now in press. I have seen it in proof, and it will be good. Sanford's *Outline Blanks* are good and can be used with or without a text-book. *Great American Industries*, by Rocheleau, is suited to grammar grades, but has much of value mixed with useless matter. Among reference books the new *Workers of the Nation* is unique, and contains live, sound information on American industries. The cyclopædias, even the latest, are not very satisfactory when tested. For example, the two most widely advertised and newly revised have nothing on cattle-raising for food or on beef-packing, etc., which are two of the most prominent American industries. If a teacher plans to buy a cyclopædia, I advise delay.

Among other aids I would say that lantern slides should be used to illustrate the great topics, as wheat, cotton, lumber. Pupils should use outline maps of the United States and the world, and make out one for each topic. They should make charts to show productions. Each pupil in the English High School is required to write three theses each year—one on a food, one on a textile fiber, and one on some manufacture or

industry. The information for this he must get, if possible, from the maker or dealer in the product, and is forbidden to use the books until he has reported to me his success with the man in the business. These theses are an essential part of the course. The boy is allowed to choose from a wide list a subject that interests him, so that he may work with more enthusiasm. No other boy in the same division has the same subject, so the boy must do his work himself. These papers when finished must be typewritten before being accepted. Talks on commercial subjects by men prominent in those lines are often to be had, and are of value. These should be held in the evening and parents and friends invited.

Now, I can imagine that you have been framing the question: "What is the effect and value of this study to pupil and the community?" First and foremost, the boy gains a respect for labor. This will correct one of the most serious evils of the time, viz., the tendency of the youth to choose a profession as the only work giving a position of dignity and reward. To be a workingman is too often considered a thing to be ashamed of and a life of profitless toil, so thousands of men fitted to be leaders of industry crowd the professions and pass their lives in an eternal struggle for a small return, an infinite waste of force. The other day an event occurred which is of the most important in our national history. It was slightly noted in the papers, but not celebrated. The date could well be made a national holiday, if the Fourth of July were not so near at hand.

I refer to the formal beginning of the Department of Commerce and Labor. Do we realize its importance? For the first time in modern history the workman is admitted to the councils of state, and his representative sits in the cabinet, a new tribune of the people, equal in power and rank to the representatives of wealth and influence. A wonderful advance in civilization! If a youth feels work to be noble, he soon sees that financial reward is as great as in the professions. Few professional men earn or expect to earn the salary received by the captains of industry or the managers of great business enterprises. This, then, is the first result of the study of this new science, that the youth turns

to the field of work eager as a soldier to the battle, and learns that to be a captain of industry is a greater glory than to be a captain of war, that the man who builds a city is greater than he who conquers it, and that men who are doing the work of the world are too busy to fight each other.

Secondly, the youth finds his knowledge of commerce and industry an actual asset of value as he seeks a place to begin work. A manufacturer said to me recently that if two boys of equal ability apply to him for work, one a country boy and the other a city boy, he always chooses the country boy, because he has an actual knowledge of real things and can do something. Not quite fair to the city boy, perhaps, but justified from the results. The study of commerce and industry will give to the city boy the same mental precision and accuracy that comes from knowledge of actual things, and so commend him to his employer as a valuable assistant. When this fact is once known, each boy will feel himself obliged to study this subject. A movement is on foot in this city to establish what might be called a "board of trade" examination, the certificate of which will show to the business man that the holder has some real knowledge of business value. No course of study would do so much to train a boy for this test as the science of commerce and industry.

There is one other important result to the community. The business man usually regards a teacher as a necessary evil, necessary to train the child, but useless to the grown man from his lack of practical knowledge. This opinion is too often just. The trained teacher of commerce and industry will change that popular contempt to respect. When the wool dealer finds that the teacher is able to meet him on his own ground and can discuss wool with him with a clear knowledge of the main subject, if not of all the details, he no longer sneers. When he sees the same teacher turn to the leather man or lumber dealer with equal command of the general subject, his indifference changes to respect for a knowledge wider than his own. When he once gains this respect for the teacher as possessing real business knowledge, he begins to consider the teacher's product—that is,

the trained boy as actually worth something and the teacher's opinion as powerful and worth esteem. In winning this position for himself the teacher of commerce and industry will win the battle for his fellow-teachers of all subjects, because they are united in the training of the boy, and thenceforward, as teacher of men as well as of boys, their influence will steadily broaden and strengthen, while they train boys in sound knowledge to be useful citizens and so lift higher the standard of a free, sane, healthy, national life.

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